

Application Serial No. 10/763,990
Amendment dated December 19, 2005
Reply to Office Action dated September 21, 2005

REMARKS

Claims 1-22 are pending in the application. The Examiner rejected Claims 1-22.

Claim Rejections – 35 U.S.C. § 112

Regarding Claims 6 and 13, Applicants respectfully submit that the phrase "real power" is defined in the specification at paragraph [0010]. Specifically, in paragraph [0010], real power is defined as $\text{real power} = \text{voltage} \times \text{current} \times \cos \theta$. Real power measurement accounts for a phase shift between the voltage and the current.

Applicants have amended Claim 13 to correct for the missing punctuation.

Applicants have also amended Claims 11, 12, and 17.

Claim Rejections – 35 U.S.C. § 102

The Examiner rejected Claims 1-11 and 17-22 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,082,122 (hereinafter "Madenokouji et al. '122"). Applicants respectfully submit that Madenokouji et al. '122 does not disclose or suggest a control and protection system for an environmental conditioning system including a microcontroller, a temperature input coupled to the microcontroller, and at least two sensor circuits coupled to the microcontroller selected from a group consisting of a power sensor circuit, a voltage sensor circuit, a current sensor circuit, and a terminal pin venting sensor circuit, as called for in Claim 1. Additionally, Applicants respectfully submit that Madenokouji et al. '122 does not disclose or suggest a control and protection system for an environmental conditioning system including a local control having a first microcontroller, a temperature input coupled to the microcontroller, and an electrical sensor circuit mounted on the local control and coupled to the microcontroller, as called for in Claim 17.

Madenokouji et al. '122 discloses air conditioner 10, shown in Figure 1, including indoor unit 12 and outdoor unit 14 having solar generator power source supplying unit (SOL) 154. Indoor unit 12, schematically shown in Figure 3, includes control substrate 58 having serial circuit 70, driving circuit 72, and microcomputer 74. Power relay substrate 60 operates power relay 80 in accordance with a signal from microcomputer 74 and vertical flap motor 78 is

controlled in accordance with a control signal from microcomputer 74 to operate vertical flap 54. Room temperature sensor 84 which detects the temperature of the interior of a room and a heat exchanger temperature sensor 86 which detects a coil temperature of heat exchanger 18 are connected to microcomputer 74.

Outdoor unit 14, schematically shown in Figure 4, includes control substrate 96 having microcomputer 98, serial circuit 102, and switching power source 104. Outdoor unit 14 also includes outside air temperature sensor 112, coil temperature sensor 114, and compressor temperature sensor 116, all of which are connected to microcomputer 98. Based on a control signal from indoor unit 12 and detection results from temperature sensors 112, 114, and 116, microcomputer 98 controls an on-off operation of fan motor 110 and an operating frequency of compressor motor 108.

SOL 154, schematically shown in Figure 5, includes microcomputer 160. Connected to microcomputer 160 are electric current detecting circuit 172, voltage detecting circuit 174, current detecting circuit 176, zero-cross input circuit 180, U-phase voltage detecting circuit 182, and V-phase voltage detecting circuit 184.

Regarding microcomputers 74 and 98, nowhere does Madenokouji et al. '122 disclose or suggest coupling thereto at least two sensor circuits selected from the group consisting of a power sensor circuit, a voltage sensor circuit, a current sensor circuit, and a terminal pin venting sensor circuit, as called for in Claim 1. In contrast, the only sensors coupled to microcomputer 74 and microcomputer 98 are temperature sensors 84, 86 and temperature sensors 112, 114, 116, respectively. Assuming *arguendo* that the first microcontroller of Claim 1 of the present application is microcomputer 74 or microcontroller 98 of Madenokouji et al. '122, neither microcomputer 74 nor microcomputer 98 include at least two sensor circuits coupled thereto selected from the group consisting of a power sensor circuit, a voltage sensor circuit, a current sensor circuit, and a terminal pin venting sensor circuit, as called for in Claim 1.

Regarding microcomputer 160, nowhere does Madenokouji et al. '122 disclose or suggest a temperature input coupled to microcomputer 160, as called for in Claim 1. In contrast,

Application Serial No. 10/763,990
Amendment dated December 19, 2005
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Madenokouji et al. '122 only discloses microcomputer 160 coupled to a plurality of electrical signal detecting circuits, such as circuits 172, 174, 176, 180, 182 and 184.

Because Madenokouji et al. '122 does not disclose or suggest a control and protection system for an environmental conditioning system including a microcontroller having a temperature input coupled thereto and at least two sensor circuits coupled thereto selected from a group consisting of a power sensor circuit, a voltage sensor circuit, a current sensor circuit, and a terminal pin venting sensor circuit, as called for in Claim 1, Applicants respectfully request withdrawal of the 35 U.S.C. § 102(b) rejection of Claim 1, and Claims 2-11 depending therefrom.

Regarding Claim 17 of the present application, assuming *arguendo* that the first microcontroller of Claim 17 is either microcomputer 74 or microcomputer 98 of Madenokouji et al. '122, Applicants respectfully submit that neither microcomputer 74 nor microcomputer 98 have an electrical sensor circuit coupled thereto, as called for in Claim 17. Furthermore, assuming *arguendo* that the first microcontroller of Claim 17 is microcomputer 160 of Madenokouji et al. '122, Applicants respectfully submit that microcomputer 160 of Madenokouji et al. '122 does not include a temperature input coupled thereto, as called for in Claim 17.

Because Madenokouji et al. '122 does not disclose or suggest a control and protection system for an environmental conditioning system including a local control having a first microcontroller, a temperature input coupled to the first microcontroller and an electrical sensor circuit coupled to the first microcontroller, Applicants respectfully request withdrawal of the 35 U.S.C. § 102(b) rejection of Claim 17, and Claims 18-22 depending therefrom.

The Examiner rejected Claims 12-16 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,509,654 (hereinafter "Ciliox et al. '654"). Applicants respectfully submit that Ciliox et al. '654 does not disclose or suggest a control and protection system for an environmental conditioning system including a microcontroller and a plurality of modules selected from a group consisting of a power sensor circuit, a voltage sensor circuit, a current sensor circuit, and a terminal pin venting sensor circuit, the plurality of modules coupled to the

Application Serial No. 10/763,990
Amendment dated December 19, 2005
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microcontroller and to the environmental conditioning system, as called for in amended Claim 12.

Ciliox et al. '654 discloses monitoring arrangement 10, shown in Figure 1, including sensor device 1, air conditioning device 2, communications device 3, and central control device 6. Sensor device 1 is connected to central control device 6 via input interface 1.9 and may include temperature gauge 1.3, current transducer 1.6, and voltage transducer 1.7. Control device 6 is based on an 8-bit microcontroller system. Even assuming *arguendo* that Ciliox et al. '654 discloses a plurality of modules selected from the group consisting of a power sensor circuit, a voltage sensor circuit, a current sensor circuit, and a terminal pin venting sensor circuit, Ciliox et al. '654 does not disclose or suggest the plurality of modules coupled to both the microcontroller *and* to the environmental conditioning system, as called for in amended Claim 12. In contrast, sensor device 1 includes components that are connected to monitoring arrangement 10 for monitoring the arrangement 10. Nowhere does Ciliox et al. '654 disclose or suggest coupling sensor device 1 to air conditioning device 2 for monitoring device 2. Because Ciliox et al. '654 does not disclose or suggest a control and protection system for an environmental conditioning system including a microcontroller and a plurality of modules coupled to the microcontroller *and* to the environmental conditioning system, as called for in amended Claim 12, Applicants respectfully request withdrawal of the 35 U.S.C. § 102(b) rejection of Claim 12, and Claims 13-16 depending therefrom.

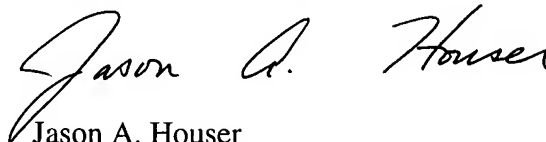
It is believed that the above represents a complete response to the Office Action and reconsideration is requested.

In the event Applicants have overlooked the need for an extension of time or payment of fee, Applicants hereby petition therefor and authorize that any charges be made to Deposit Account No. 02-0385, BAKER & DANIELS.

Application Serial No. 10/763,990
Amendment dated December 19, 2005
Reply to Office Action dated September 21, 2005

If any questions concerning this application should arise, the Examiner is encouraged to telephone the undersigned at 260/424-8000.

Respectfully submitted,



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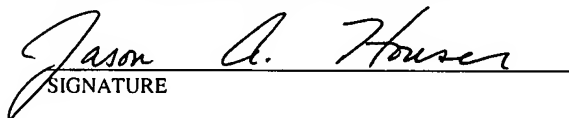
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December 19, 2005
DATE